

MODEL GROUNDWATER PROTECTION ORDINANCE

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Planning

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MODEL GROUNDWATER PROTECTION ORDINANCE

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INTRODUCTION

This model ordinance was created in response to numerous requests from municipal officials for more local tools to protect stratified-drift aquifers.¹ This ordinance has been designed for the protection of aquifers as well as other locally important groundwater, which may include wellhead protection areas (see the ordinance for definitions).² This ordinance does not represent a state or federal requirement. Whether to provide special protection for important groundwater resources, which areas to include in a groundwater protection district, and how to protect those areas are entirely local decisions.

Groundwater is a critical natural and economic resource for New Hampshire. It is our most frequently used source of drinking water, in addition to being an integral part of the hydrologic system and vitally important for fish, wildlife, and recreation. The New Hampshire Department of Environmental Services (DES) estimates that between 60 and 70 million gallons per day of groundwater is supplied for drinking water in New Hampshire. Approximately 60 percent of New Hampshire residents rely on groundwater for their drinking water. Of the 2,148 public water supply systems in New Hampshire, 98 percent rely on groundwater. Groundwater also provides an estimated 40 percent of the total flow in New Hampshire's rivers, which in turn feed the state's lakes, reservoirs, and estuaries.

Groundwater can be contaminated when chemicals are spilled or discharged onto or into the ground. Liquids can flow through the ground into groundwater, and both solids and liquids can be flushed downward by rain and snowmelt. Once contaminants reach groundwater, they often move along with the groundwater flow. The most common causes of groundwater contamination in New Hampshire are leaking underground storage tanks, mishandling of industrial chemicals, and storage and use of road salt. Industrial solvents are especially potent contaminants; only 5 ounces of TCE, a common industrial solvent, can make up to 7.8 million gallons of water unacceptable for drinking based on federal standards. Although there are many state and federal programs which directly or indirectly serve to protect groundwater, it is generally acknowledged that local programs are necessary to maximize the effectiveness of groundwater protection.

Local Approaches to Groundwater Protection

There are many tools that cities and towns can use to protect groundwater. Some of these tools involve passing new laws or changing existing laws, while others are entirely non-regulatory. The most effective way to protect groundwater is by controlling land uses, either through acquisition of the land or easements, or through land use controls. Land use controls can include zoning ordinances

¹One of the catalysts behind local interest in aquifer protection has been the recent publication of a series of stratified-drift aquifer studies prepared jointly by NH Department of Environmental Services and US Geological Survey. For more information, contact DES's Water Resources Program at (603) 271-1975.

²Locally important groundwater may also include other areas. For background on groundwater protection and the various regulatory and non-regulatory tools available to municipalities, see *The DES Guide to Groundwater Protection*, available from DES's Drinking Water Source Protection Program, (603) 271-1168.

(such as this one), site plan review regulations, and subdivision regulations. Local regulations can also address specific activities such as some gravel excavations, septic system operation and maintenance, and the use of underground storage tanks, fertilizer, and wastewater residuals (sludge). Non-regulatory approaches include household hazardous waste collection and public education. All of these techniques are described in *The DES Guide to Groundwater Protection*, available from DES's Drinking Water Source Protection Program by calling (603) 271-1168.

Planning as a Prelude to Zoning

Before adopting a groundwater protection ordinance, the municipality should address the need for groundwater protection in its master plan. Groundwater protection is typically addressed in a document (incorporated by reference into the master plan) referred to as the water resources management and protection plan. This document should address a wide range of water resources issues, including the need to protect wetlands and surface waters and the potential future need for water supply sources. In light of population and water demand projections, the plan should consider the roles of public water systems and on-site private wells (for homes, businesses, institutions, and industry) and the relative suitability of potential groundwater and surface water sources. If water demand by public water supply systems is a factor driving groundwater protection, the issue should also be addressed in the master plan's community facilities section (sometimes a separate document).

Restrictive Zoning vs. Inspection

Most, if not all, of the existing groundwater (or aquifer) protection zoning ordinances in New Hampshire rely primarily on restrictive zoning. The advantages of this approach include its simplicity, the relatively low cost of administration, and the high degree of protection that can be achieved if there are no existing land uses that may pose a risk of groundwater contamination. The main drawbacks of relying exclusively on restrictive zoning are that existing uses are grandfathered and some potentially clean land uses are prohibited.

Many New Hampshire municipalities and water suppliers rely on inspection programs to protect their groundwater resources, especially in wellhead protection areas. These inspection programs typically rely on state Best Management Practices (BMP) Rules, which are common-sense practices that apply to the storage, handling, and disposal of regulated substances.³ Inspection programs may be either voluntary or mandatory, meaning that the facility owner may or may not have the option to deny the inspector access to the facility. Mandatory inspection programs typically derive their authority from a local health ordinance or from groundwater reclassification, a cooperative state-local approach.⁴ The advantage of inspection programs over restrictive zoning is that nearly all land uses are permitted. As a result, there is no question of negative impact on land values. The disadvantage of relying exclusively on inspection is that high-risk land uses are still permitted, despite the fact that their potential contamination risks may not be acceptable even with periodic inspections.

While some communities have been reluctant to adopt an inspection approach because of the misperception that specialized expertise is needed in order to conduct the inspections, the fact is that

³For a summary of the BMP Rules, see the BMP fact sheet in Appendix A.

⁴For more information about groundwater reclassification, contact DES's Drinking Water Source Protection Program at (603) 271-1168.

NH DES has successfully trained dozens of health officers and water supply operators to conduct inspection programs and has found their background and experience appropriate. This model integrates inspection into a zoning ordinance as described in the following section.

A Combined Approach

In order to ensure a high level of protection while still providing for maximum flexibility in siting land uses, this model ordinance provides an alternative to restrictive zoning alone: combining the zoning approach with the inspection approach. The ordinance prohibits seven high-risk land uses and requires all others (except for those with no regulated substances containers of 5 gallons or more and others exempted under Article XI) to conform to performance standards. The performance standards incorporate the state BMP Rules (which are already in effect throughout the state), but go beyond them to place requirements on such things as stormwater treatment. Some uses, designated Conditional Uses under Article IX, must undergo Planning Board review and may need to post a performance bond to ensure compliance with the Performance Standards. As with any zoning ordinance, the municipality has the authority to conduct inspections to ensure compliance.

This model is written as a stand-alone ordinance; if it is to be adopted as an overlay district within an existing zoning ordinance, several articles could be removed to avoid duplicating existing text. Specifically, Articles I, X, XIV, and XV may duplicate existing provisions.

Inspections Necessary

Regional planners in New Hampshire report that communities tend to be much more successful in ensuring compliance at the review stage than with post-approval follow-up. In order for this ordinance to be effective at minimizing the risk of groundwater contamination, **the municipality must conduct periodic inspections** of every facility that may store or use regulated substances in containers with a capacity of 5 gallons or more. Municipalities may charge a fee to pay for an inspection program, but experience suggests that the costs of such programs are so low that they can be administered by existing personnel. If a municipality wishes to protect its important groundwater resources but is unable to make a permanent commitment to conducting an inspection program, it should consider restrictive zoning or expanding the list of prohibited uses in this ordinance (see Appendix C). Examples of aquifer protection ordinances abound in New Hampshire; contact your regional planning commission for guidance. Before using this or any other ordinance as a model, carefully review the ordinance's provisions for consistency with your municipality's objectives.

Narrowing or Broadening the Scope of the Ordinance

Because a community's need for groundwater protection is usually driven by its need for drinking water supplies, the geographic scope of this model (Article IV) should be reviewed in light of the analysis included in the municipality's water resources plan. A community with extensive areas underlain by stratified-drift aquifers and/or wellhead protection areas may or may not wish to include all such areas in the Groundwater Protection District. For example, the town may wish to include only wellhead protection areas, only some aquifers, or only some areas of mapped aquifers, such as areas where transmissivity is mapped as 1,000 ft²/day or greater. A community may also wish to conduct a Favorable Gravel Well Analysis to identify areas of an aquifer that are most probably developable for water supply. (Contact DES's Drinking Water Source Protection Program for more information.) The challenge is to balance the need to protect present and/or future water supply sources with the ability of the municipality to administer an inspection program.

In this model, the definition of wellhead protection area excludes wellhead protection areas for non-community water systems. Communities may wish to consider extending protection to include wellhead protection areas for non-community systems, such as those serving restaurants, hotels, and

campgrounds.

Other Recommended Measures

This focus of this ordinance is fairly narrow; it is concerned with the protection of selected groundwater resources where the town can devote the necessary resources for an ongoing inspection program. Towns should consider adopting other ordinances for the prevention of nonpoint source pollution of surface waters and for the protection of wetlands. Ideally all water resources protection measures should be integrated into the municipality's zoning ordinance(s), which could include components of this model. However, due to the varying needs and priorities of communities, DES and OSP have not yet undertaken to develop such a broad model.

As an example of the need to integrate water resources protection with other zoning provisions, many zoning ordinances allow home occupations in residential districts, with some restrictions, sometimes requiring a special exception from the Zoning Board of Adjustment. Those restrictions are generally designed to limit traffic, noise, and esthetic impacts on the neighborhood. In order to minimize the risk of groundwater contamination, it is recommended that municipalities restrict the quantities of regulated substances that home occupations may keep on site without being subject to compliance inspections. As with other businesses, it is recommended that home-based businesses be restricted to using hazardous substances containers with a capacity of less than 5 gallons or else be treated as a business that is subject to inspections.

Education

Regardless of whether your municipality chooses to take a regulatory approach, every groundwater protection program should have a strong education component. Regulatory programs, which rightfully focus on only the riskiest land uses, can accomplish only so much. Since nearly all businesses and households use substances that can potentially contaminate groundwater, the vast majority of potential contamination sources are unregulated. Education is a practical way to address the situation. Education activities may be targeted at the general public or at specific groups such as business owners, residents of the groundwater protection district, and school-age youth. DES's Drinking Water Source Protection Program offers a variety of assistance to municipal groups and teachers interested in groundwater education; the program can be reached at (603) 271-1168 or 271-7061.

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1. AUTHORITY

The (City or Town) of _____ hereby adopts this ordinance pursuant to the authority granted under RSA 674:16, in particular RSA 674:16, II relative to innovative land use controls.

2. PURPOSE

The purpose of this ordinance is, in the interest of public health, safety, and general welfare, to preserve, maintain, and protect from contamination existing and potential groundwater supply areas *and to protect surface waters that are fed by groundwater.*

The purpose is to be accomplished by regulating land uses which could contribute pollutants to designated wells and/or aquifers identified as being needed for present and/or future public water supply.

3. DEFINITIONS

1. Aquifer: a geologic formation composed of rock, sand, or gravel that contains significant amounts of potentially recoverable water.
2. Groundwater: subsurface water that occurs beneath the water table in soils and geologic formations.
3. Impervious: not readily permitting the infiltration of water.
4. Impervious surface: a surface through which regulated substances cannot pass when spilled.

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RSA 674 includes the zoning enabling law; RSA 675 governs enactment and adoption procedures; and RSA 676 governs administrative and enforcement procedures. RSA 674:21 provides examples of the innovative land use controls@ that municipalities may adopt under RSA 674:16, including Aperformance standards@ and Aenvironmental characteristics zoning.@

This section describes the purposes of this ordinance, which should be consistent with the purposes of an up-to-date, properly adopted master plan. It should be modified to reflect the intent of the municipality which might adopt the model ordinance. The italicized text at left is optional; protection of drinking water sources is usually more compelling, if for no other reason than the fact that the contamination of drinking water sources has been far more common in New Hampshire than the contamination of surface waters by groundwater.

This term is defined in order to clarify the purpose of the ordinance.

From RSA 485-C, the Groundwater Protection Act.

This term is used in Performance Standard V.D. It is defined to distinguish it from Aimpervious surface.@ What is considered impervious with respect to stormwater infiltration is not necessarily considered impervious with respect to containment of regulated substances.

From NH Code of Administrative Rules Env-Ws 421.03(c), Best Management Practices rules for groundwater protection, except that substances has been

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Impervious surfaces include concrete unless unsealed cracks or holes are present. Asphalt; earthen, wooden, or gravel surfaces; or other surfaces which could react with or dissolve when in contact with the substances stored on them are not considered impervious surfaces.

5. Junkyard: an establishment or place of business which is maintained, operated, or used for storing, keeping, buying, or selling junk, or for the maintenance or operation of an automotive recycling yard, and includes garbage dumps and sanitary landfills. The word does not include any motor vehicle dealers registered with the director of motor vehicles under RSA 261:104 and controlled under RSA 236:126.
6. Outdoor storage: storage of materials where they are not protected from the elements by a roof, walls, and a floor with an impervious surface.
7. Public water system: a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.
8. Regulated substance: petroleum, petroleum products, and substances listed under 40 CFR 302, 7-1-90 edition, excluding the following substances: (1) ammonia, (2) sodium hypochlorite, (3) sodium hydroxide, (4) acetic acid, (5) sulfuric acid, (6) potassium hydroxide, (7) potassium permanganate, and (8) propane and other liquified fuels which exist as gases at normal atmospheric temperature and pressure.
9. Sanitary protective radius: The area around a well which must be maintained in its natural state as required by Env-Ws 378 or 379 (for community water systems) and Env-Ws

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except that Asubstances@ has been substituted for Acontaminants.@

From RSA 236:91 IV.

This term is used in the performance standards (VI. F and G and under prohibited uses (VIII. C).

From RSA 485:1-a, XV. The definition used here is abbreviated because the only reference in this ordinance to a public water system is in the definition of wellhead protection area.

From Env-Ws 421.03(f). The first seven chemicals are excluded from the statutory definition of regulated substance because they are used in the treatment of water supplies and are not considered to pose a significant risk to groundwater. Petroleum and petroleum products have been added, with the exception of propane.

The sanitary protective radius ranges from 75 to 400 feet, depending on the amount of water withdrawn from the well. The minimum radius for a community well is 150 feet.

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372.13 (for other public water systems).

10. Secondary containment: a structure such as a berm or dike with an impervious surface which is adequate to hold at least 110% of the volume of the largest regulated-substances container that will be stored there.

11. Snow dump: For the purposes of this ordinance, a location where snow which is cleared from roadways and/or motor vehicle parking areas is placed for disposal.

12. Stratified-drift aquifer: A geologic formation of predominantly well-sorted sediment deposited by or in bodies of glacial meltwater, including gravel, sand, silt, or clay, which contains sufficient saturated permeable material to yield significant quantities of water to wells.

13. Surface water: streams, lakes, ponds and tidal waters, including marshes, water courses and other bodies of water, natural or artificial.

14. Wellhead protection area: The surface and subsurface area surrounding a water well or wellfield supplying a community public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield.

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From Env-Ws 421.03(g).

Prohibited under Article VIII.

From RSA 485-C:2, XIV. This definition is not needed if the ordinance is to be used only to protect wellhead protection areas.

From RSA 485-A:2 XIV, A Surface waters of the state.@

*From RSA 485-C:2, XVIII, except that **the definition has been narrowed to include only wells for community (residential) public water systems and not other types of public water systems.** This definition is not needed if the ordinance is to be used only to protect stratified-drift aquifers. Check with DES to see how the wellhead protection areas in your district have been delineated. Phase II delineations are considered to be a solid basis for land-use restrictions, but not all Phase I delineations are. Phase I delineations are based on available information, and if there was limited information available, then assumptions were made. If your wellhead protection areas are based on Phase I delineations, have a hydrogeologist check to see that assumptions and chosen inputs are valid*

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4. GROUNDWATER PROTECTION DISTRICT

The Groundwater Protection District is an overlay district which is superimposed over the existing underlying zoning and includes within its boundaries . . .

the Wellhead Protection Areas shown on the map entitled, ATown of _____ Groundwater Protection District,@ dated _____.

... or ...

the Stratified Drift Aquifer(s) shown on the map entitled, ATown of _____ Groundwater Protection District,@dated _____.

... or a combination of the two.

5. APPLICABILITY

This Ordinance applies to all uses in the Groundwater Protection District, except for those uses exempt under Article XI of this Ordinance.

6. PERFORMANCE STANDARDS

The following Performance Standards apply

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assumptions and chosen inputs are valid for the site. A hydrogeologic site investigation may be required to make the determination.

The use of an overlay district is recommended based on the fact that 208 of 234 municipalities (80%) within New Hampshire presently have comprehensive zoning ordinances. The presence of an ordinance would suggest that adoption of an overlay would be the simplest and most direct way to protect the groundwater resource.

Two options are presented in the model--one for wellhead protection areas and one for stratified-drift aquifers. A municipality may choose to protect one of these categories or both. If it chooses to protect both, the text needs to be modified. Although this model uses "Groundwater Protection District" and "Groundwater Protection Ordinance" throughout, the names could be changed to reflect the types of resources to be protected (e.g. Wellhead Protection, Aquifer Protection).

The municipality must develop a map to accompany the ordinance. Information on the extent of stratified-drift aquifers may be obtained from maps prepared by US Geological Survey or NH DES. Wellhead protection area maps are available from NH DES. See the note accompanying the definition of wellhead protection area.

The rationale or technical support for such a district should be incorporated into the municipal master plan prior to adoption of this ordinance.

The effectiveness of this model ordinance depends on the ability of the municipality to

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to all uses in the Groundwater Protection District unless exempt under Article XI:

1. For any use that will render impervious more than 15% or more than 2,500 square feet of any lot, whichever is greater, a stormwater management plan shall be prepared which the planning board determines is consistent with Stormwater Management and Erosion and Sediment Control Handbook for Urban and Developing Areas in New Hampshire, Rockingham County Conservation District, August 1992 and Best Management Practices for Urban Stormwater Runoff, NH Department of Environmental Services, January 1996.
2. Stormwater management plans prepared pursuant to paragraph A shall demonstrate that stormwater recharged to groundwater will not result in violation of Ambient Groundwater Quality Standards (Env-Ws 410.05) at the property boundary;
3. Animal manures, fertilizers, and compost must be stored in accordance with Manual of Best Management Practices for Agriculture in New Hampshire, NH Department of Agriculture, Markets, and Food, August 1998, and any subsequent revisions;
4. All regulated substances stored in containers with a capacity of 5 gallons or more must be stored in product-tight containers on an impervious surface designed and

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*depends on the ability of the municipality to ensure initial **and continuing** compliance with these performance standards.*

Any lot could have up to 2,500 square feet of impervious area without requiring a stormwater management plan. For lots larger than 0.38 acres, the 15% limit applies.

When reviewing stormwater management plans it is crucial that the planning board consult with competent individuals to ensure consistency with these standards.

Note: The 1996 BMP manual cited here states that infiltration devices should be used as a last resort, that they should not be used in wellhead protection areas, and that they should not be used at industrial or petroleum-related sites (p. VIII-2). However, in some areas where watersheds are highly urbanized or may become so, preserving aquifer recharge (and aquifer yield as a consequence) may be an important concern. In these areas, it may be desirable to place percentage (e.g. 15%) limits on impervious area or to require recharge of treated stormwater. With the latter approach, the challenge is to balance the need for recharge with the desire to minimize the risk of groundwater contamination from inadequately treated stormwater.

Ambient Groundwater Quality Standards are designed to ensure that groundwater is drinkable.

NH Department of Agriculture, Markets and Food may be consulted to help determine whether a particular facility is in compliance with the agriculture BMPs.

The last five performance standards are based on Env-Ws 421, groundwater protection rules, which apply in all areas of the state. However, the state rules apply only to containers larger than 5 gallons. The advantages of including these

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maintained to prevent flow to exposed soils, floor drains, and outside drains;

5. Facilities where regulated substances are stored must be secured against unauthorized entry by means (a) of door(s) and/or gate(s) which is (are) locked when authorized personnel are not present and must be inspected weekly by the facility owner;
6. Outdoor storage areas for regulated substances must be protected from exposure to precipitation and must be located at least 50 feet from surface water or storm drains, at least 75 feet from private wells, and outside the sanitary protective radius of wells used by public water systems;
7. Secondary containment must be provided for outdoor storage of regulated substances if an aggregate of 275 gallons or more of regulated substances are stored outdoors on any particular property;
8. Containers in which regulated substances are stored must be clearly and visibly labelled and must be kept closed and sealed when material is not being transferred from one container to another.

7. PERMITTED USES

All uses permitted by right or allowed by special exception in the underlying district are permitted in the Groundwater Protection District unless they are Prohibited Uses or Conditional Uses. All uses must comply with the Performance Standards unless specifically exempt under Article XI.

8. PROHIBITED USES

The following uses are prohibited in the Groundwater Protection District.

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The advantages of including these standards here are:

- C *they are enforceable on the local level,*
- C *owners are put on notice that the rules apply,*
- C *they apply to a broader range of uses and activities,*
- C *they apply to small containers as well as large,*
- C *there is a process to ensure initial compliance (for uses that come under planning board review), and*
- C *the planning board may require a performance bond to ensure compliance (for conditional uses).*

Note that, while the presence of a 5-gallon (or larger) container for regulated substances is what makes a facility subject to this ordinance, the last four performance standards (paragraphs E through H) apply to all regulated substances containers at those facilities, even if they are smaller than 5 gallons.

Given the fact that environmental safeguards for underground storage systems have proven to be less than completely reliable, some ordinances either restrict this land use or require the use of groundwater monitoring wells for these systems located in highly sensitive areas such as aquifer districts, wellhead protection areas, or within a specified distance of public water supply wells.

No Planning Board review is required unless such review is triggered by other provisions such as site plan or subdivision review.

This model ordinance includes two regulatory approaches to protecting important groundwater: prohibiting high-risk land uses and ensuring that other land uses comply with performance standards.

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uses comply with performance standards. The short list of prohibited uses included here assumes that the municipality has the personnel resources to review development proposals and construction work in progress to ensure initial compliance with the performance standards, and can ensure continuing compliance through periodic facility inspections. Without inspections to ensure continuing compliance with performance standards, this short list of prohibited uses does not provide a significant level of protection.

1. The siting or operation of a hazardous waste disposal facility as defined under RSA 147-A;
2. The siting or operation of a solid waste landfill;
3. The outdoor storage of road salt or other deicing chemicals in bulk;
4. The siting or operation of a junkyard;
5. The siting or operation of a snow dump;
6. The siting or operation of a wastewater or septage lagoon.

This list of prohibited uses is from RSA 485-C:12, uses which are prohibited in wellhead protection areas which are reclassified.

If the municipality does not plan to carry out an inspection program, the list of prohibited uses should be expanded. See Appendix C.

Some ordinances include underground storage systems as a prohibited land use in the overlay district, or require groundwater monitoring wells. See the Explanatory Notes for Article VI.

9. CONDITIONAL USES

The Planning Board may grant a Conditional Use Permit for a use which is otherwise permitted within the underlying district, if the permitted use is or is involved in one or more of the following:

1. Storage, handling, and use of regulated substances in quantities exceeding 100 gallons or 800 pounds dry weight at any one time, provided that an adequate plan is in place to prevent, contain, and minimize releases from catastrophic events such as spills or fires which may cause large releases of regulated substances;
2. Any use that will render impervious more than 15% or 2,500 square feet of any lot, whichever is greater.

RSA 674:21 II. states that an innovative land use control ordinance may provide for the granting of conditional or special use permits by any of several different municipal authorities, including planning boards. While planning boards are typically more experienced at reviewing and determining appropriate conditions for various land uses, it may be desirable to substitute some other authority, such as the Zoning Board of Adjustment.

Facilities that store and use regulated substances only in containers smaller than 5 gallons are exempt from the ordinance; other facilities are subject to inspections; and amounts exceeding 100 gallons/800 pounds require a conditional use permit.

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whichever is greater.

In granting such approval the Planning Board must first determine that the proposed use is not a prohibited use and will be in compliance with the Performance Standards as well as all applicable local, state and federal requirements. The Planning Board may, at its discretion, require a performance guarantee or bond, in an amount and with surety conditions satisfactory to the Board, to be posted to ensure completion of construction of any facilities required for compliance with the Performance Standards.

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pounds require a conditional use permit.

The applicability of the performance guarantee or bond has been narrowed to apply only to the construction of facilities so that the bond can be released once the facilities are constructed in compliance with the Performance Standards. In order to determine the amount of the guarantee or bond, the Planning Board generally will have to retain a consulting engineer to determine the cost of building the required structures. The Planning Board will also need to consult with legal counsel to ensure that the town obtains the authority to enter the property in order to complete construction of the required structures if need be. The Conditional Use Permit should reference approved plans so that it is clear what conditions are necessary for the Board to release the bond.

10.EXISTING NONCONFORMING USES

Existing nonconforming uses may continue without expanding or changing to another nonconforming use, but must be in compliance with all applicable state and federal requirements, including Env-Ws 421, Best Management Practices Rules.

See the fact sheets in Appendix A for a summary of Best Management Practices Rules and the facilities to which they apply.

11.EXEMPTIONS

The following uses are exempt from the specified provisions of this ordinance as long as they are in compliance with all applicable local, state, and federal requirements:

1. Any private residence is exempt from all Performance Standards;
2. Any business or facility where regulated substances are not stored in containers with a capacity of 5 gallons or more is exempt from Performance Standards E through H;
3. Storage of heating fuels for on-site use or fuels for emergency

Residences and exempt businesses may still pose a risk of groundwater contamination from relatively small releases of regulated substances. These properties should be addressed by a public education program which, at a minimum, should include periodic distribution of educational fliers (see example in Appendix E). For more information, see the introduction.

Note that propane and liquified gas

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electric generation, provided that storage tanks are indoors on a concrete floor or have corrosion control, leak detection, and secondary containment in place, is exempt from Performance Standard E;

4. Storage of motor fuel in tanks attached to vehicles and fitted with permanent fuel lines to enable the fuel to be used by that vehicle is exempt from Performance Standards E through H;
5. Storage and use of office supplies is exempt from Performance Standards E through H;
6. Temporary storage of construction materials on a site where they are to be used is exempt from Performance Standards E through H;
7. The sale, transportation, and use of pesticides as defined in RSA 430:29 XXVI. are exempt from all provisions of this ordinance;
8. Household hazardous waste collection projects regulated under NH Code of Administrative Rules Env-Wm 401.03(b)(1) and 501.01(b) are exempt from Performance Standards E through H.
9. Underground storage tank systems and above-ground storage tank systems that are in compliance with applicable state rules are exempt from inspections under Article XIII of this ordinance.

12.RELATIONSHIP BETWEEN STATE AND LOCAL REQUIREMENTS

Where both the State and the municipality have existing requirements the more stringent shall govern.

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fuels are not regulated under this ordinance; they are excluded from the definition of *Regulated Substance* because they do not pose a groundwater contamination hazard by virtue of their volatility.

*The municipality may wish to define *Temporary* in terms of a number of months.*

RSA 430:49 prohibits local governments from regulating the registration, sale, transportation, or use of pesticides.

To determine whether a storage tank system is in compliance with state rules, the municipality may contact NH DES at 271-3644. See the UST and AST fact sheets in Appendix A. The presence of a UST/AST system in compliance does not exempt the rest of the business or facility from inspections.

Articles XII, XIV, and XV are usually included within an existing ordinance and may not be necessary to be incorporated if this ordinance is adopted as an amendment. Enforcement procedures, penalties and violations should conform to existing municipal requirements. However, including the reference to inspections, would serve to put business owners on notice that inspections will be conducted.

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13. MAINTENANCE AND INSPECTION

1. For uses requiring planning board approval for any reason, a narrative description of maintenance requirements for structures required to comply with Performance Standards, shall be recorded so as to run with the land on which such structures are located, at the Registry of Deeds for _____ County. The description so prepared shall comply with the requirements of RSA 478:4-a.
2. Inspections may be required to verify compliance with Performance Standards. Such inspections shall be performed by the (designated agent) at reasonable times with prior notice to the landowner.
3. All properties within the Groundwater Protection District known to the (designated agent) as using or storing regulated substances in containers with a capacity of 5 gallons or more, except for facilities where all regulated substances storage is exempt from this Ordinance under Article XI, shall be subject to inspections under this Article.
4. The (governing body) may require a fee for compliance inspections. The fee shall be paid by the property owner. A fee schedule shall be established by the (governing body) as provided for in RSA 41-9:a.

EXPLANATORY NOTES

The provision for recording maintenance requirements on the deed serves to put future property owners on notice that they are subject to these requirements. It applies to any structure associated with any facility that comes under planning board review, not only those which require a conditional use permit under this ordinance.

*In order to achieve the goals of this ordinance, **inspections should be performed at least once every three years.** The municipality may wish to perform inspections in the entire groundwater protection district or only in areas considered most sensitive, most vulnerable, or most valuable.*

*The term **Adesignated agent@** should be replaced with the appropriate person's title, such as Code Enforcement Officer, if such a position exists. If not, the governing body may wish to designate some other town official and include a definition of the term **Adesignated agent.@** (The person designated by the governing body to carry out its inspection and enforcement role with respect to this ordinance.)*

*The term **Agoverning body@** should be replaced with the name of the governing body, e.g. Selectmen, Town Council.*

14. ENFORCEMENT PROCEDURES AND PENALTIES

Any violation of the requirements of this ordinance shall be subject to the enforcement procedures and penalties detailed in RSA 676.

MODEL ORDINANCE
penalties detailed in RSA 676.

EXPLANATORY NOTES

15.SAVING CLAUSE

If any provision of this ordinance is found to be unenforceable, such provision shall be considered separable and shall not be construed to invalidate the remainder of the ordinance.

16.EFFECTIVE DATE

This ordinance shall be effective upon adoption by the municipal governing body.

Appendix A

DES Groundwater Protection Fact Sheets

WD-WSEB-22-1	The NH Groundwater Protection Act, An Overview
WD-WSEB-22-2	Local Reclassification of Groundwater to Implement Protection Programs
WD-WSEB-22-3	Groundwater Reclassification and How It Affects the Property Owner
WD-WSEB-22-4	Best Management Practices (BMPs) for Groundwater Protection
WD-WSEB-22-5	Source Control Programs Required for Infiltration of Stormwater at Industrial and Petroleum-Related Facilities
WD-WSEB-22-6	Best Management Practices for Fueling and Maintenance of Excavation and Earth Removal Equipment
WD-WSEB-22-8	Holding Tanks for Floor Drains
WD-WSEB-22-9	Protecting Groundwater from Floor Drains and Other Typical Discharges
WD-WSEB-22-10	Wastewater Discharges from Vehicle Washing
WMD-OIL-11	Summary of NH UST Regulations
ANotice@	New State Regulations Concerning Aboveground Oil Storage Tanks (ASTs) Became Effective on April 25, 1997

Appendix B

40 CFR 302 (List of regulated substances)

Appendix C

Expanded List of Prohibited Uses

Although this model ordinance advocates a performance standards approach rather than restrictive zoning, following is a list of land uses that a municipality may wish to prohibit in a groundwater protection district *in lieu of an inspection program*. It is recommended that the municipality review each land use on the list to determine which to prohibit, as the land uses included here are *not* prohibited in reclassified areas by RSA 485-C:12. The risk of each land use should be evaluated in terms of the community's risk tolerance as well as the economic benefit of allowing the use.

The community should also carefully consider which area(s) of the town to include in the groundwater protection district if an expanded list of prohibited uses is to be employed, since stratified-drift aquifers may underly a substantial portion of the economically developable land in some towns. In such situations, the community may wish to designate only some aquifers, such as those used, or anticipated to be used, for water supplies, in which to prohibit a long list of uses.

1. Storage of liquid petroleum products, except the following:
 - a. normal household use, outdoor maintenance, and heating of a structure;
 - b. waste oil retention facilities required by statute, rule, or regulation;
 - c. emergency generators required by statute, rule, or regulation;
 - d. treatment works approved by NH DES for treatment of ground or surface waters;***provided*** that such storage, listed in items a. through d. above, is in free-standing containers within buildings or above ground with secondary containment adequate to contain a spill 110% the size of the containers=total storage capacity;
2. Sludge monofills and septage lagoons;
3. Storage of animal manure unless covered or contained in accordance with the specifications of the United States Natural Resources Conservation Service;
4. Facilities that generate, treat, store, or dispose of hazardous waste subject to Env-Wm 500-900 except for:
 - a. household hazardous waste centers and events regulated under Env-Wm 401.03(b)(1) and Env-Wm 501.01(b); and
 - b. water remediation treatment works approved by NH DES for the treatment of contaminated ground or surface waters;
5. Non-sanitary treatment works which discharge to the ground and that are subject to Env-Ws 1500, except the following:
 - a. the replacement or repair of an existing treatment works that will not result in a design capacity greater than the design capacity of the existing treatment works;
 - b. treatment works approved by NH DES designed for the treatment of contaminated groundwater;
6. Storage of regulated substances, unless in a free-standing container within a building or above ground with secondary containment adequate to

contain 110% of the container's total storage capacity;

7. Storage of commercial fertilizers, unless such storage is within a structure designated to prevent the generation and escape of contaminated runoff or leachate.

Appendix D

Sample Compliance and Enforcement Letters

The sample letters in this appendix are designed to be used as part of an inspection program to ensure compliance with the model groundwater protection ordinance. Please review each letter carefully before using it, to ensure that it is consistent with the ordinance as adopted by your community.

Please note that letters 1 through 3 refer to **A**inventory interviews[@] and **A**compliance inspections.[@] An inventory interview is an informal scheduled visit, not required under the terms of the model ordinance, to determine whether a facility stores or uses enough regulated substances to come under the provisions of the ordinance. During an inventory interview the inspector goes through the first two sections of the inspection form with the facility owner/operator. The interview is an opportunity to explain the provisions of the ordinance and to give the facility owner/operator an opportunity to come into compliance before an inspection takes place. During an inventory interview the inspector may determine, without actually walking through the facility, that the facility is exempt from the ordinance and that a compliance inspection will not be necessary.

A compliance inspection is a formal walk-through of a facility to ensure compliance with all provisions of the ordinance. The inspector may wish to schedule a compliance inspection without scheduling a separate inventory interview. It is generally considered less intimidating to conduct an inventory interview first, but the approach that is chosen will depend on local circumstances.

NH Department of Environmental Services=Drinking Water Source Protection Program provides training to local inspectors in how to conduct inspection programs. For information, please contact the Drinking Water Source Protection Program at 271-1168.

Sample Letter 1

Explaining the Program and Setting a Time for an Inventory Interview

DATE

RE: (Give name and location of facility), Present use: (List present use of property)

Dear _____ (Customer, Neighbor, Facility Owner - fill in appropriate term),

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water. If we are all careful, substances that could pollute our drinking water will never find their way to our wells.

Your facility has been identified as being located in the Groundwater Protection District. As such, it is important that you are aware that the present use of your property listed above has the potential to affect the quality of an important local groundwater resource. Your facility could also affect the water quality of your own well if you have one.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint, garden chemicals, or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down a toilet or sink drain, or onto the ground.

To help you avoid activities that could threaten water quality, we are enclosing an informational flyer, a copy of the Groundwater Protection Ordinance, a fact sheet regarding the State Best Management Practices Rules (Env-Ws 421), and an inspection form that can be used to perform a self-audit. Compliance with these rules is mandatory if you use, store, handle, or dispose of regulated substances in greater-than-household quantities. Any unpermitted discharges to groundwater or contamination of groundwater is illegal under RSA 485-A:13 and Env-Ws 410. By complying with these rules and implementing the suggested practices contained on the flyer, you will both help us to protect this valuable source of drinking water and at the same time reduce your own environmental liability.

Providing you with this information is the first phase of the protection program we are undertaking to protect this groundwater resource. The next step is to visit you at your facility to determine if you use greater-than-household quantities of regulated substances and to answer any questions you may have. We believe we will be at your facility on _____ (Date). Please contact me at _____ (Phone Number) between the hours of _____ if there is a specific time or alternate date you would like to meet with me. If you have any questions about this program please call me.

Thank you.

Sincerely,

Contact person's name, title

Enclosures: Groundwater Protection Ordinance
Fact Sheet About BMP Rules
Informational Flyer
Inspection Form

Sample Letter 2
Scheduling an Appointment for a Compliance Inspection If an Inventory
Interview Has Already Been Conducted

DATE

RE: (Give name and location of facility)

Dear _____ (Customer, Neighbor, Facility Owner - fill in appropriate term),

Thank you for meeting with me recently and giving me a chance to explain the groundwater protection program that we are in the process of implementing. As I explained when we met, the next step in this program is to conduct inspections of facilities using larger than household quantities of regulated substances.

The purpose of this letter is to notify you of the date that I will be performing an inspection of your facility. I will be in your area on ____ (Date). Please contact me at ____ (Phone #) during the hours of _____ if you need me to be at your facility at a specific time or if you need to reschedule for another day.

The first letter I sent you contained a copy of the inspection form I will be using. Another copy is enclosed with this letter for your convenience. I urge you to do a self-audit to identify and correct any violations of the Groundwater Protection Ordinance before I arrive. This will also allow you to clarify any questions you may have about the inspection before my visit.

Thanks again for your help in protecting this valuable source of drinking water.

Sincerely,

Contact person's name

Enclosure: Inspection form

Sample Letter 3

Setting a Time for a Compliance Inspection If an Inventory Interview Has Not Been Conducted

DATE

RE: (Give name and location of facility), Present use: (List present use of property)

Dear _____ (Customer, Neighbor, Facility Owner - fill in appropriate term),

The purpose of this letter is to ask for your cooperation in ensuring safe drinking water. If we are all careful, we can protect our (current *or* future) sources of drinking water from contamination.

Your facility has been identified as being located in the Groundwater Protection District. As such, it is important that you are aware that the present use of your property listed above has the potential to affect the quality of the water. Your activity could also affect the water quality of your own well if you have one.

No one wants to drink polluted water. Who would pour gasoline, motor oil, paint, garden chemicals, or household chemicals into their drinking water? Yet, the equivalent is done when someone pours any of these products down a toilet or sink drain, or onto the ground.

To help you avoid activities that could threaten water quality, we are enclosing an informational flyer, a copy of the Groundwater Protection Ordinance, a fact sheet about the state Best Management Practices Rules (Env-Ws 421) and an inspection form that can be used to perform a self-audit. Compliance with these rules is mandatory if you use, store, handle, or dispose of regulated substances in greater-than-household quantities. Any unpermitted discharges to groundwater or contamination of groundwater is illegal under RSA 485-A:13 and Env-Ws 410. By complying with these rules and implementing the suggested practices contained on the flyer, you will help us to protect our wells while at the same time reducing your own environmental liability.

Providing you with this information is the first phase of a protection program we are undertaking to protect water quality. The next step is to perform a compliance inspection to ensure that you are in compliance with the enclosed ordinance. I will be coming to your facility on____(Date). Please contact me at ____ (Phone) during the hours of _____ if you need me to arrive at a certain time or if we need to reschedule for a different day. I urge you to perform a self-audit with the attached inspection form so that any violations of the rules can be remedied before my visit. This will also allow you to clarify any questions you may have.

Please feel free to contact me if you have any questions.

We need your help to protect this valuable source of drinking water! Thank you.

Sincerely,

Contact person's name

Encl.: Informational Flyer
Groundwater Protection Ordinance
Fact Sheet on BMP Rules
Inspection Form

Sample Letter 4
The Facility is in Compliance

DATE

Dear _____ (Customer, Neighbor, Facility Owner - fill in appropriate term),

Thank you for participating in the inspection for compliance with the Groundwater Protection Ordinance that I performed at your facility, (name of facility), on (Date). I am pleased to inform you that I found no violations of the ordinance. Therefore, you will not hear from me again until the next round of compliance inspections, which we anticipate will be conducted in (Insert year you intend to do inspections again). Please remain vigilant in ensuring that your activities comply with the established standards as noted on the inspection checklist.

In the meantime, if you have any questions concerning the ordinance or our groundwater protection program please do not hesitate to contact me at (Phone number).

Thanks for your help in keeping this valuable source of drinking water safe.

Sincerely

Contact person=s name, title

Sample Letter 5
The Facility is Not in Compliance

DATE

Dear _____ (Customer, Neighbor, Facility Owner - fill in appropriate term),

Thank you for participating in the inspection for compliance with the Groundwater Protection Ordinance that I performed at your facility, (name of facility) , on (Date) . During the course of the inspection, I discovered that certain activities occurring at your property were not being performed in accordance with the ordinance. The purpose of this letter is to ask that the following activities be corrected by (Date) .

Paragraph Violated: Comments (including description of corrective action needed):

Please note that failure to comply with this request may result in enforcement action pursuant to RSA 676. That statute authorizes civil penalties of \$100 per day, injunctive relief, and criminal (misdemeanor) penalties. If state BMP Rules have been violated, this matter will be referred to the New Hampshire Department of Environmental Services (DES), which is authorized to pursue substantial fines and, in some instances, cease and desist orders, per RSA 485-C. Under RSA 485-C, administrative fines can range up to \$2,000 for each day of a continuing violation, while civil penalties can range up to \$10,000 per day and criminal penalties can range up to \$25,000 per day. Injunctive relief is also available under that statute. I will be contacting you in the near future to schedule an inspection to verify compliance with this request.

Thank you in advance for your willingness to help protect our valuable groundwater. If you have any questions about this letter, please call me at (Phone #) between the hours of

.

Sincerely

Contact person's name, title

Enclosure: Completed inspection form

Sample Letter 6 Second Warning

DATE

Dear _____ (Customer, Neighbor, Facility Owner - fill in appropriate term),

In a letter dated _____, I informed you that you were not in compliance with the Groundwater Protection Ordinance. On (date) , I conducted a follow-up inspection to determine compliance with the rules. To the best of my knowledge, you remain out of compliance with the following:

Paragraph Violated:

Comments:

Unless I hear from you within 30 days of the receipt of this letter with an indication that you have corrected the violation(s) or we have agreed to a compliance schedule, I will have no choice but to refer the matter to town counsel for prosecution in district or superior court. Please note that failure to comply with the ordinance may result in enforcement action pursuant to RSA 676.

That statute authorizes civil penalties of \$100 per day, injunctive relief, and criminal (misdemeanor) penalties. If state BMP Rules have been violated, this matter will be referred to the New Hampshire Department of Environmental Services (DES), which is authorized to pursue substantial fines and, in some instances, cease and desist orders, per RSA 485-C. Under RSA 485-C, administrative fines can range up to \$2,000 for each day of a continuing violation, while civil penalties can range up to \$10,000 per day and criminal penalties can range up to \$25,000 per day. Injunctive relief is also available under that statute. I hope we can avoid the assessment of fines and penalties in this matter.

Thank you in advance for your willingness to help protect our valuable source of drinking water. If you have any questions, please call me at (Phone #) between the hours of _____.

Sincerely,

Contact person's name, title

Enclosures: Copy of first violation letter

Copy of completed form from follow-up inspection

Sample Letter 7
Referring a Violation of Env-Ws 421 to NH DES

Date _____

Robert W. Varney, Commissioner
N.H. Department of Environmental Services
6 Hazen Drive, P.O. Box 95
Concord NH 03301-0095

RE: Enforcement Activities under the Groundwater Protection Act, RSA 485-C

Dear Commissioner Varney:

I am writing to request the Department's assistance in managing Potential Contamination Sources in a wellhead or groundwater protection area by enforcing Env-Ws 421 Best Management Practices. I have attempted to bring about voluntary compliance with Env-Ws 421 as described below:

A first compliance inspection held _____(date) at _____(name of facility, location) discovered the following violation(s): _____

_____(Cite specific sections of the rules, describe nature of violation(s), and specify the regulated substance(s) involved). The enclosed violation letter was sent on (date) and a follow-up inspection was conducted on (date). The second inspection indicated (describe results), and second warning was sent on (date). (Describe any communication with the PCS owner since sending the second warning.)

I have enclosed copies of all pertinent correspondence and inspection forms. Thank you for your attention to this matter.

Sincerely,

(Contact person's name, title)

Enclosures: Completed form from initial inspection
Copy of first violation letter
Completed form from follow-up inspection
Copy of second warning
(Copies of other correspondence to or from PCS owner)
(Copies of records of telephone conversations with PCS owner)

cc.: PCS owner

Appendix E: Information for Educational Flier

CLEAN DRINKING WATER IS UP TO YOU

Where does your drinking water come from?

Your drinking water comes from groundwater. Groundwater is the water that flows through the spaces between soil particles and through fractures in rock. It comes from rain and snowmelt percolating through the ground.

Why should you be concerned?

While some pollutants (such as bacteria, viruses, and phosphorus) can be reduced by passing through soil under certain conditions, groundwater can be easily contaminated by chemicals and oil.

What can you do to protect your drinking water?

Do	Don't
Use non-toxic and less-toxic alternatives to household chemicals such as cleaners, oil-based paints, insecticides.	<i>Don't</i> buy more hazardous chemicals than you need.
Take leftover household chemicals to your town's household hazardous waste collection day.	<i>Don't</i> dispose of hazardous chemicals by pouring them down the drain or onto the ground.
Follow package directions on pesticides, fertilizers, and other household chemicals.	<i>Don't</i> over-use household chemicals. More is not better.
Check your underground fuel storage tank (USTs) frequently for leaks. Have an UST removed if it is more than 20 years old; replace it with above-ground storage that has a concrete slab underneath it and a cover over it.	<i>Don't</i> hire a tank removal contractor who is not familiar with new State guidelines for UST removal.
Take care of your septic system. Inspect the septic tank every year. Have the tank pumped out every three years or when the combined thickness of sludge and scum equals 1/3 or more of the tank depth. Avoid damage to your leach field and distribution lines by keeping vehicles, livestock, and other heavy objects off the leach field.	<i>Don't</i> overload your septic system with solids by using a garbage grinder (unless the system was specifically designed for a grinder). <i>Don't</i> use septic system cleaners or additives containing acids or chemical solvents such as trichloroethylene (TCE).

Household Hazardous Chemicals

Automotive fluids	Paint thinner
Auto batteries	Other solvents
Used motor oil	Pesticides
Paint	Cleaning products

For more information about what you can do, call

...

Reduce - Reuse - Recycle

Appendix F: Sample Inspection Form